

Abstract

Methods and apparatus for generating and transmitting frequency division multiplexed signals are described. Each transmitted FDM signal is generated by combining, e.g., multiplexing, a plurality of individual analog subcarrier signals together. Individual analog subcarrier signals are generated by processing one or more digital signals, e.g., symbols plus a cyclic prefix for each symbol, corresponding to the subcarrier to generate an analog subcarrier signal there from. In one embodiment, digital signals for each individual subcarrier are received and processed in parallel. Each generated analog subcarrier signal is subject to amplification, e.g., power amplification, prior to being combined with the other analog subcarrier signals. Power amplified subcarrier signals are generated in parallel, or, alternatively, some of the circuitry used to generate one subcarrier signal can be used on a time shared basis to generate one or more additional subcarrier signals with the results being buffered prior to being combined to form the transmitted signal. The transmission signal generated by combining the previously amplified analog subcarrier signals can be subjected to further amplification prior to transmission. Amplifiers with less dynamic range can normally be used to amplify individual subcarrier signals than is required to amplify a transmission signal generated from individual subcarrier signals which have not been subject to power amplification. Filters may be used to compensate for or correct signal distortions. A cyclic prefix incorporated into subcarrier signals is designed to be of sufficient length that it

covers delays introduced by filters in the individual subcarrier signal paths and common signal path.